



In a room and pillar mine, pillars of coal provide primary roof support. Roof bolts provide secondary support.



Roof bolts, also called pins, come in 3 - 8 foot lengths. Resin glue anchors the bolt into limestone and holds the strata together.



The Automated Temporary Roof Support (ATRS) holds the roof in place and protects the miners while they are inserting bolts.

# Underground Mining

## Roof Bolting Mining Equipment



The roof bolter has been driven into the recently mined entry. The tape hanging from the black roof at the front of the machine signals that the roof is unsupported and dangerous. The roof bolters are raising the ATRS that will support the roof above them.



A drill steel is used to drill a hole through the strata and into the limestone.



For deep holes, an extender is added to the drill steel.



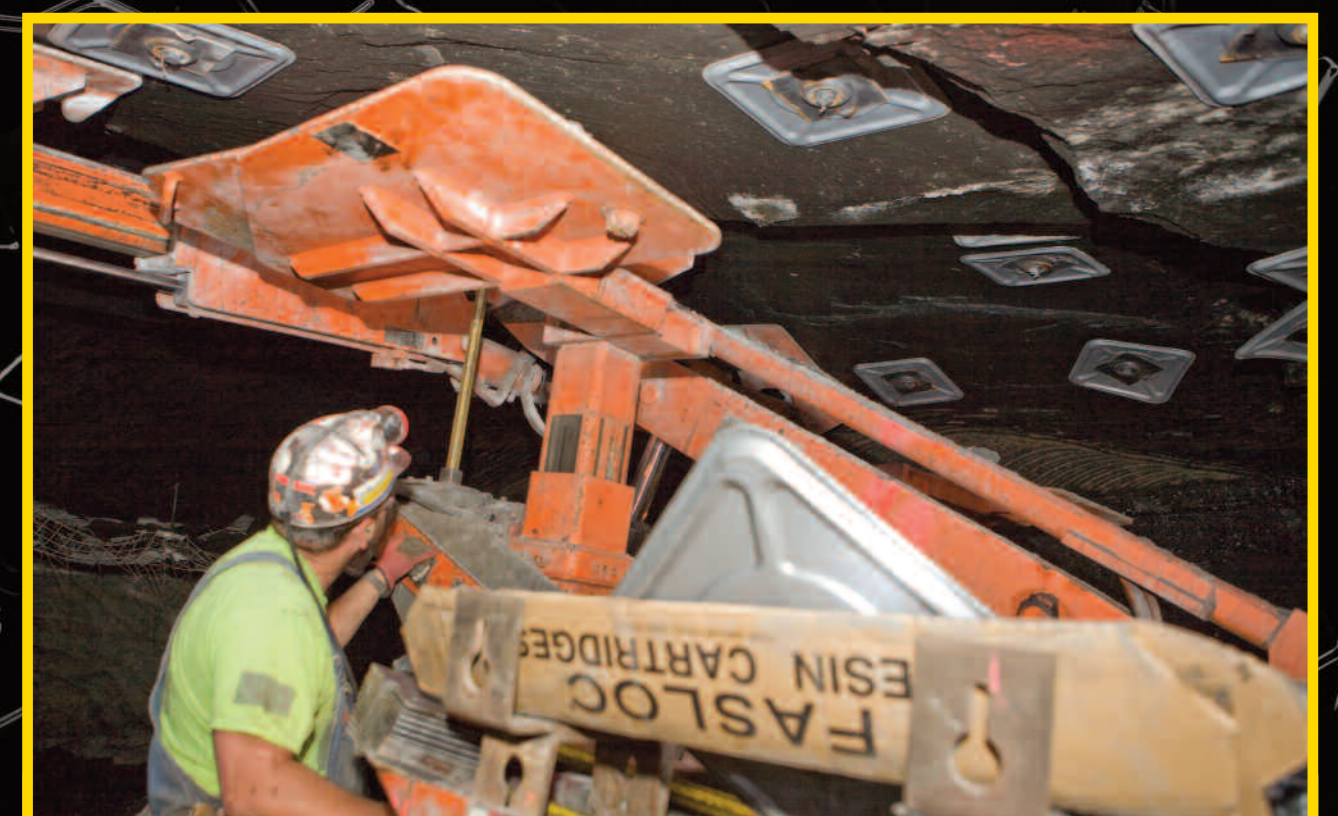
A shrill screech signals the operator that the steel has penetrated the hard limestone.



After the hole is drilled the proper length, the resin, roof bolt and plate are inserted.



The machine spins the bolt spreading the resin throughout the strata.



The roof is secure with a pattern of bolts making a stark contrast against the black roof.



State of Illinois



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